HP OpenView VantagePoint Performance Agent for HP-UX®

Installation & Configuration Guide

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Hewlett-Packard Company
OpenView Business Unit
Product Generation
8000 Foothills Blvd.
Roseville, CA 95747-5726, USA

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Conventions

boldface	Words in boldface represent the names of programs and commands.
`computer font`	Words in computer font represent file names, syntax, directory path names, or text as you should enter it on your workstation or terminal, and text that appears on the screen.
italics	Italics are used to emphasize words, phrases, or characters in the text, or indicate variables in syntax strings.
Return or Enter keys	Depending on your keyboard, one or the other represents the key used to execute a command.

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1

Installing MeasureWare Agent

Introduction

MeasureWare Agent software captures performance, resource, and transaction data from your HP 9000 server or workstation system. Using minimal system resources, the software continuously collects, summarizes, time stamps, and detects alarm conditions, on current and historical resource data across your system. You can analyze the data using spreadsheet programs, Hewlett-Packard analysis products such as PerfView, or third-party analysis products. Also, MeasureWare Agent provides data access to PerfView and sends alarm notifications to PerfView, HP OpenView, and IT/Operations.

N o t e :

HP OpenView MeasureWare Agent has been renamed to HP OpenView VantagePoint Performance Agent (VP Performance Agent). The name change has not yet been fully implemented acrosss the VP Performance Agent software and documentation. Therefore, you will encounter references to the former product name.

MeasureWare Agent uses data source integration (DSI) technology to receive, alarm on, and log data from external data sources such as applications, databases, networks, and other operating systems.

The comprehensive data logged and stored by MeasureWare Agent allows you to:

- Characterize the workloads in the environment.
- Analyze resource usage and load balance.
- Perform trend analyses on historical data to isolate and identify bottlenecks.
- Perform service-level management based on transaction response time.
- Perform capacity planning.
- Respond to alarm conditions.
- Solve system management problems before they arise.

For a comprehensive description of the product, see the *VP Performance Agent for UNIX User's Manual.*

N o t e : **If you have a factory integrated system, skip this chapter and go directly to Chapter 2, "Starting and Running MeasureWare Agent."**

Installation Requirements

Before installing MeasureWare Agent, be sure that your system meets the requirements described below. Certain system and configuration prerequisites are necessary for MeasureWare Agent to operate properly on your system.

Hardware

MeasureWare Agent runs on HP9000 servers and workstations.

Software

This version of MeasureWare Agent requires releases (10.20??) or 11.11 of the HP-UX operating system.

Disk Space

MeasureWare Agent installs in the `/opt/perf/` directory and creates its log and status files in the `/var/opt/perf/` directory.

- For first time installation of MeasureWare Agent, 30 MBs of disk space are required in the `/opt/perf`/ directory.
- For log and status files, it is recommended that you allow for 40 MBs of disk space in the `/var/opt/perf/` directory.

For a description of how to use the `parm` file to configure log file data storage, see the "Parm File" section in Chapter 2 of your *VP Performance Agent for UNIX User's Manual.*

Installation Procedures

MeasureWare Agent is on the CD-ROM installation media in several filesets. The size of the product is approximately 30 MBs.

MeasureWare Agent installation is done in two phases: First, you stop any performance tools or processes that may be running. Then, you install the product. (For additional information on installation procedures, see the *Managing HP-UX Software Manual* or the *HP OpenView Software Distributor Administrator's Guide*.)

To stop active performance tools or processes:

1. Log in as `root`.
2. Run **perfstat** to check for active performance tools by typing

   ```
   /opt/perf/bin/perfstat
   ```

   If **perfstat** reports any active performance tools such as GlancePlus, stop them. (Before doing so, make sure that none of your users are currently using these tools.)
3. If a previously-installed version of MeasureWare Agent is running, you must stop it by typing:

   ```
   /opt/perf/bin/mwa stop
   ```

   (Customized configuration files such as the `parm`, `alarmdef`, `ttd.conf`, and `perflbd.rc` files as well as any customized log files will *not* be overwritten by the new installation.)
4. Make sure the **midaemon** (measurement interface daemon) is not active by typing:

   ```
   ps -ef | grep midaemon
   ```

   If the **midaemon** is still active, type:

   ```
   /opt/perf/bin/midaemon -T
   ```

5. Make sure the **ttd** (transaction tracking daemon) is not active by typing:

   ```
   ps -ef | grep ttd
   ```

   If the **ttd** is still active, type:

   ```
   /opt/perf/bin/ttd -k
   ```

   to stop the **ttd**. Any ARM-instrumented applications that are running must also be stopped.

6. Run **perfstat** again to ensure that no performance tools or processes are active. When all tools or processes have been stopped, proceed with the installation.

To install MeasureWare Agent:

1. Make sure you are logged in as `root`.
2. Run the **swinstall** program to install MeasureWare Agent the same way you install any other software package on an HP-UX system.
3. The MeasureWare Agent product is included as part of the GlancePlus Pak. Change the **swinstall** source to point to your installation media and select the GlancePlus Pak bundle,

   or,

   select the MeasureWare Agent bundle if you have *not* purchased the GlancePlus Pak.

4. The install process appends information to the end of the two log files named `/var/adm/sw/swinstall.log` and `/var/adm/sw/swagent.log`. These files contain system messages about the installation and records of any problems the system encountered. Read these files to see if any error messages were logged during the installation and take appropriate action as needed.

   To read the last 100 lines of the `swinstall.log` file, type the following command:

   ```
   tail -100 /var/adm/sw/swinstall.log
   ```

If you run **swinstall** in an interactive mode, you can open the `swinstall.log` file and view it while **swinstall** runs. Otherwise, you can look at `swinstall.log` and `swagent.log` in `/var/adm/sw/` to see any errors or problems

Installation of MeasureWare Agent automatically updates files used by `/etc/profile/` and lets users access the product's executables in `/opt/perf/bin/` and its **man** pages without explicitly updating their shell environment variables. This should take effect the next time users log in.

MeasureWare Agent installation is now complete. Go to Chapter 2 for details on the other tasks you need to perform to get up and running on MeasureWare Agent.

Installing VP Performance Agent Using VP Operations

If you are using HP OpenView VantagePoint Operations for UNIX, you can install VP Performance Agent from the management server to an HP-UX managed node. For installation instructions, please see Chapter 14, "VantagePoint Performance Agent for HP-UX and Sun Solaris," in the *VP Operations for UNIX Administrator's Reference Volume II.*

N o t e :

For more information and late-breaking news about MeasureWare Agent, see your Release Notes. You can find them in the file `/opt/perf/ReleaseNotes/Mwa`.

2

Starting & Running MeasureWare Agent

Introduction

This chapter explains the tasks involved in starting up and running MeasureWare Agent after it has been installed on your HP 9000 system under HP-UX releases 10.20 or 11.0. The following topics are discussed:

- procedures for starting, stopping, and restarting MeasureWare Agent
- running MeasureWare Agent
- communicating across a firewall
- **midaemon** program
- `parm` file configuration for HP-UX systems
- configuring data sources
- configuring alarm definitions
- printing additional documents that are included with MeasureWare Agent

N o t e :

If you are planning to log data from other sources using data source integration (DSI), and haven't yet done so, read the *VP Performance Agent for UNIX Data Source Integration Guide.*

Starting & Stopping MeasureWare Agent

Now that installation is complete, you can start up MeasureWare Agent and begin its collection and logging processes. The MeasureWare Agent script, `mwa`, lets you start all or some processes and stop or restart currently running processes. (See "Stopping & Restarting MeasureWare Agent" after the following steps.)

To start MeasureWare Agent and its processes:

1. Log in as root.
2. Check to see if any processes are running by typing:

   ```
   /opt/perf/bin/perfstat
   ```

   If you have just installed MeasureWare Agent, no processes should be running, and you can proceed with the start up.
3. Start MeasureWare Agent and its processes by typing:

   ```
   /opt/perf/bin/mwa start
   ```

The `mwa` script starts MeasureWare Agent and all its processes, including the **scopeux** data collector, the **midaemon** (measurement interface daemon), and the **alarm generator**. As the script executes, the names of some of the processes and the files that are running are displayed on your screen.

When you do a `mwa start`, information similar to the following is displayed:

```
The Transaction Tracker daemon is being started.
         The Transaction Tracker daemon
         /opt/perf/bin/ttd has been started.

The MeasureWare scope collector is being started.
         The performance collection daemon
         /opt/perf/bin/scopeux has been started.

The MeasureWare server daemons are being started.
         The MeasureWare Location Broker daemon
         /opt/perf/bin/perflbd has been started.
```

Stopping & Restarting MeasureWare Agent

You can stop MeasureWare Agent processes while they are running and restart them using the `mwa` script and its appropriate options.

- `mwa stop` stops all MeasureWare Agent processes except **ttd** (transaction tracking daemon). **ttd** should always be left running.

When you do a `mwa stop`, information similar to the following is displayed:

```
Shutting down MeasureWare collection software
         Shutting down scopeux, pid(s) 29071
         The MeasureWare collector, scopeux has been shut down
         successfully.
NOTE:    The Transaction tracking daemon, ttd will be left running.
         pid 29076

Shutting down the MeasureWare server daemons
         Shutting down perfldb, pid(s) 29084
         The MeasureWare Server has been shut down successfully.
```

MeasureWare Agent can be reinitialized using the `mwa restart` option. Changes to configuration files will not take effect on your system unless the processes are restarted.

- `mwa restart server` causes the repository servers to stop and then restart, temporarily disabling alarming and access to PerfView, and rereads the `perflbd.rc` file. It also stops and then restarts the alarm generator processes and rereads the `alarmdef` file.
- `mwa restart scope` causes **scopeux** and the transaction daemon **ttd** to temporarily stop and then restart. It rereads the `parm` file and the `ttd.conf` transaction configuration file.
- `mwa restart alarms` causes the alarm generator processes to temporarily stop and then restart and reread the `alarmdef` file. This action does not disrupt any other processes.

W a r n i n g : **If you stop ttd, any ARM-instrumented applications that are running must also be stopped before you restart ttd and MeasureWare Agent processes.**

Starting MeasureWare Agent Automatically

The process of starting MeasureWare Agent automatically whenever the system reboots is controlled by the configuration file `/etc/rc.config.d/mwa`. This file defines two shell variables, `MWA_START` and `MWA_START_COMMAND`. The default `/etc/rc.config.d/mwa` configuration file shipped with this version of MeasureWare Agent resides in `/opt/perf/newconfig/` and assigns the following values to these variables:

```
MWA_START=1
MWA_START_COMMAND="/opt/perf/bin/mwa start"
```

When MeasureWare Agent is installed, the file is conditionally copied to `/etc/rc.config.d/mwa` and will not replace any existing `/etc/rc.config.d/mwa` configuration file that may have been customized by the user for a previous version of MeasureWare Agent.

When the file is copied to `/etc/rc.config.d/mwa`, the variable `MWA_START=1` causes MeasureWare Agent to automatically start when the system reboots. The variable `MWA_START_COMMAND="/opt/perf/bin/mwa start"` causes *all* MeasureWare Agent processes to initiate when the system reboots.

If you want MeasureWare Agent to start at system reboot using special options, modify the `/etc/rc.config.d/mwa` file by changing `MWA_START_COMMAND` from its default value of `"/opt/perf/bin/mwa start"` to the desired value. For example, to start up **scopeux** but not the servers, change the value to `"/opt/perf/bin/mwa start scope"`.

To disable MeasureWare Agent startup when the system reboots, change the variable `MWA_START=1 to MWA_START=0`.

Removing MeasureWare Agent

If you need to remove MeasureWare Agent from a system, use the `mwa.remove` script that is in the `/opt/perf/bin/` directory. You must be logged in as `root` to perform the remove.

Before removing MeasureWare Agent, you may want to archive any log files that were created. These files contain performance data for that system and can be used to extract or view data at a later time.

Running MeasureWare Agent

Disk Space Required

When MeasureWare Agent is first installed, the default `parm` file is set up to collect a maximum of 60 MB of log file data.

If you do not have 60 MB of free disk space available for the log file data, you can still start **scopeux**. You can modify the `parm` file and restart **scopeux** to change the size of the log files based on the amount of disk space you want to use. (For information about modifying the `parm` file, see Chapter 2 of your *VP Performance Agent for UNIX User's Manual*.)

Status Checking

You can check the status of all or some MeasureWare Agent processes using the **perfstat** command.

Perfstat displays output similar to the following example:

```
list of performance tool processes:
MeasureWare scope status:
    Running scopeux                (MWA data collector) pid 29071
    Running midaemon               (measurement interface daemon) pid 29070
MeasureWare background daemon status:
    Running ttd                    (Transaction tracking daemon) pid 29076
MeasureWare server status:
    Running alarmgen               (alarm generator) pid 29613
    Running agdbserver             (alarm database server) pid 29612
    Running perflbd                (location broker) pid 29084

    The following data sources have running repository servers:
                            PID  DATA SOURCE
    Running rep_server    29089  SCOPE
```

Status Files

Several status files are created in the `/var/opt/perf/` directory when MeasureWare Agent is started.

- The `status.scope` file serves as a status and error log for **scopeux**. New information is appended to this file each time **scopeux** is started.
- The following status files contain diagnostic information you can use to troubleshoot problems that may arise with the processes that generate the files.

  `status.alarmgen`

  `status.perflbd`

  `status.rep_server`

  `status.ttd`

  `status.mi`

Every time a MeasureWare Agent process writes a message to its status file, it checks to see if the file is larger than one megabyte. If it is, the file is renamed to `status.`*`filename`*`.old` and a new status file is created.

Examples Directory

The `/opt/perf/examples/` directory contains examples of configuration files, syntax files, and sample program files that can be used to customize your HP Performance Tools. For example, the `/examples/mwaconfig/` subdirectory contains sample alarm definitions and examples of `parm` file application-specific parameters. For more information, see the `/opt/perf/examples/README` file.

Communicating Across a Firewall

MeasureWare Agent supports communication across a packet-filtering network firewall. If a network firewall exists between two systems, MeasureWare Agent can send alarms to PerfView, and PerfView can graph data from MeasureWare Agent on a remote system.

Normally, MeasureWare Agent and PerfView use dynamically allocated socket port addresses for interprocess communication. To communicate across a packet-filtering firewall, you must configure the PerfView (version C.00.00 or later) system to use restricted port addresses. (For more information, see the PerfView Release Notes.)

Follow these steps to allow MeasureWare Agent to communicate across a packet-filtering firewall.

1. Modify the start up scripts for DCE to set the RPC_RESTRICTED_PORTS environment variable. The RPC_RESTRICTED_PORTS environment variable controls how socket addresses are allocated for client and server processes.

   For DCE on HP-UX 10.20, edit the files `/sbin/init.d/ncs` and `/sbin/init.d/dce`. For DCE on HP-UX 11.0, edit the files `/sbin/init.d/Rpcd` and `/sbin/init.d/dce`. Add the following two lines to the beginning of the files:

   ```
   RPC_RESTRICTED_PORTS=ncadg_ip_udp[xxxx-yyy]
   export RPC_RESTRICTED_PORTS
   ```

   where [*xxxx-yyy*] represents the range of addresses you have chosen. The required range will vary depending on your DCE installation. At a minimum., a range of 6 is needed to support **rpcd**; at a maximum, a range of 50 should be sufficient. This range is referenced as [DCE server ports] in the table that follows these steps.

2. Restart the DCE servers for DCE/HP-UX by running:

   ```
   /sbin/init.d/dce stop
   /sbin/init.d/dce start
   ```

3. To set the RPC_RESTRICTED_PORTS environment variable for MeasureWare Agent, add the following line to the `/var/opt/perf/vppa.env` file:

   export `RPC_RESTRICTED_PORTS=ncadg_ip_udp[`*`xxxx-yyy`*`]`

   where [*xxxx-yyy*] represents the range of addresses you have chosen. The number of ports required can be computed as:

   range required = 5 + (2 * # of repository servers)

   This range is referenced below as [MeasureWare ports].

4. Restart the MeasureWare Agent servers by running `mwa restart`.
5. Configure your firewall with the source and destination IP addresses and port numbers shown here.

Name	Direction	Destination	Protocol	Source
Dced_upd	in/out	135 + [DCE server ports]	UDP	[PerfView ports]
perflbd	in/out	382	TCP	1024-65535
MeasureWare Agent	in/out	[MeasureWare ports]	UDP	[PerfView ports]

Restricting RPC Addresses

The RPC_SUPPORTED_NETADDRS environment variable is used to force the DCE/RPC service to bind to specific LAN cards in a multi-homed environment. If this environment variable is set, only addresses in the list are advertised in the endpoint map; addresses not found on the list are excluded from the server's list of available addresses.

To restrict the servers to using only a specified set of IP addresses, set the RPC_SUPPORTED_NETADDRS environment variable before starting the servers.

The syntax is:

```
RPC_SUPPORTED_NETADDRS=protocol:ip_address[,protocol:ip_address]
```

To set the environment variable for the MeasureWare Agent servers, add the lines:

```
RPC_SUPPORTED_NETADDRS=ncadg_udp:192.1.1.1
export RPC_SUPPORTED_NETADDRS
```

to the `/var/opt/perf/vppa.env` file and then restart the servers using `mwa restart server`.

If you are still have problems connecting, the problem may be with the endpoint map (**dced/rpcd**). Try setting the environment variable *before* starting **dced/rpcd**. On HP-UX 10.20, add the environment variable to the files `/sbin/init.d/dce` and `/sbin/init.d/ncs`. On HP-UX 11.0, add the environment variable to the files `/sbin/init.d/dce` and `/sbin/init.d/Rpcd`. Then restart the system to make the IP address restriction take affect.

Midaemon Program

The measurement interface program `/opt/perf/bin/midaemon` collects and counts trace data coming from the HP-UX kernel and translates it for use by MeasureWare Agent and Glance via a shared memory segment. MeasureWare Agent's **scopeux** daemon program attaches to this interface. **Midaemon** is also used for collection of Application Response Measurement (ARM) data.

The activity of **midaemon** grows as the overall system's workload increases while **midaemon** processes traces for HP-UX events such as context switches, I/O completions, and system calls. **Midaemon** executes as a high priority program, but if it cannot keep up with the trace rate of a particular work load, it may lose buffers. This MI buffer loss is usually not fatal to the performance tools, but it can degrade the performance data as reflected in the metrics shown by the tools. For example, a lost buffer of data might contain a process termination, so that after buffer loss, Glance and MeasureWare Agent might assume that a process is running when it has in fact terminated. There is a metric available to track this, `GBL_LOST_MI_TRACE_BUFFERS`, and the `status.scope` file also reports when this metric's value increases. If you find this to be an issue, you can correct the performance data by stopping and then restarting **midaemon** as follows:

Type:

```
/opt/perf/bin/mwa/mwa stop
/opt/perf/bin/midaemon -T
/opt/perf/bin/mwa start
```

Note that stopping **midaemon** (`midaemon -T`) will also cause active Glance sessions to stop.

The file `/var/opt/perf/status.mi` holds **midaemon** error messages. If **midaemon** terminates abnormally, check the `status.mi` file and the **midaemon man** page for more information.

Configuring Data Sources

MeasureWare Agent uses a set of repository servers that provides previously collected data to the alarm generator and the PerfView analysis product. There is a repository server for each specific data source such as **scopeux** log files or DSI log files. Each data source consists of a single log file set. The data source is configured in the `perflbd.rc` file that resides in the `/var/opt/perf/` directory. When you first start up MeasureWare Agent after installation, a default data source named SCOPE is already configured and provides a **scopeux** log file set.

If you want to add repository servers for other data sources, you configure them in the `perflbd.rc` file. Then, when you restart MeasureWare Agent using `mwa restart server`, the **perflbd** daemon looks for `perflbd.rc`, reads it, and starts a repository server for each data source it finds.

Perflbd.rc Format

Each entry you place into `perflbd.rc` represents a data source consisting of a single log file set. The entry specifies the data source name by which the repository server is known and where the data it contains can be found. Fields are case-insensitive except for the log file pathname. The syntax is:

`datasource=`*`datasource_name`* `logfile=`*`logfile_set`*

- `datasource` is a keyword. *`datasource_name`* is the name used to identify the data source; for example, the data source name used in alarm definitions or by analysis software. Data source names *must* be unique. The maximum length for a data source name is 64 characters.
- `logfile` is a keyword. *`logfile_set`* is the fully-qualified name that identifies the log file set. It can be a log file created by **scopeux**, **dsilog**, or an extracted log file created by the **extract** program.

Here are two examples of `perflbd.rc` data source entries:

```
datasource=SCOPE logfile=/var/opt/perf/datafiles/logglob
datasource=ASTEX logfile=/tmp/dsidemo/log/astex/ASTEX_SDL
```

For specific examples of configuring DSI data sources, see "Configuring Data Sources" in Chapter 4 of the *VP Performance Agent for UNIX Data Source Integration Guide.*

Parm File Configuration

The information in this section covers `parm` file parameters that are used to define applications and processes. Read this section if you plan to modify the following parameters in the default `parm` file:

- `threshold`
- `wait`
- `priority`

Before modifying the above parameters, read the "Parm File" section in Chapter 2 of the *VP Performance Agent for UNIX User's Manual* for a detailed description of the `parm` file and its parameters.

Defining Threshold Options

The `threshold` parameter's `shortlived` option can be specified in the `parm` file when you are using MeasureWare Agent on HP-UX only.

Shortlived Option

The `threshold shortlived` option turns on logging of processes that ran for less than one second in an interval. (This often significantly increases the number of processes logged.) If **scopeux** finds `threshold shortlived` in the `parm` file, it logs shortlived processes, regardless of the CPU or disk threshold, as long as the `nonew` and `nokilled` options are removed. For a description of the `threshold nonew` and `nokilled` options, see the "Parameters" section in Chapter 2 of the *VP Performance Agent for UNIX User's Manual*.

The default is no shortlived processes will be logged. (Do not specify shortlived in the `threshold` parameter if you do not want shortlived processes logged.)

Defining Wait Options

The following `wait` parameter options can be specified in the `parm` file when you are using MeasureWare Agent on HP-UX.

- `wait cpu`
- `wait disk`
- `wait mem`
- `wait sem`
- `wait lan`

These options set the percentage of wait time that when exceeded causes the process to become "interesting" and be logged. Processes will also be logged for other reasons.

Wait CPU Option

The `wait cpu` option sets the percentage of time during the interval that the process is waiting for its priority to become high enough to get the CPU. For example, `cpu=75` means that if the process has to wait more than 75 percent of the interval, it becomes "interesting" and is logged.

The default is `wait cpu=100.00%`.

Wait Disk Option

The `wait disk` option sets the percentage of time during the interval that the process is blocked on the disk subsystem. This includes any time spent waiting in the DISK, INODE, CACHE, and CDFS wait states. The time waiting for raw IO to a disk is not included in this measurement.

The default is `wait disk=100.00%`.

Wait Mem Option

The `wait mem` option sets the percentage of time during the interval that the process is waiting for memory resources to become available.

The default is `wait mem=100.00%`.

Wait Sem Option

The `wait sem` option sets the percentage of time during the interval that the process is waiting on a semaphore operation.

The default is `wait sem=100.00%`.

Wait Lan Option

The `wait lan` option sets the percentage of time during the interval that the process is waiting for IO over the LAN to complete.

The default is `wait lan=100.00%`.

Priority Parameter

MeasureWare Agent allows the collection of user-defined applications. An application is a collection of processes based on user logon, program file name, user group, and process priority. For more information about application-specific `parm` file parameters, see the "Parm File" section in Chapter 2 of the *VP Performance Agent for UNIX User's Manual*.

Processes on HP-UX can range in priority from -511 to 255. The 0 to 127 priorities are reserved for real-time processes. Priorities between 128 and 177 are used for processes running in system mode. Time-share processes running in user mode have priorities between 178 and 255.

A process can change priorities programmatically or can have its priority changed externally by the **nice** and **rtprio** commands.

Defining Alarms

If you plan to use alarms to monitor performance, you need to specify the conditions that generate alarms in a set of alarm definitions in the MeasureWare Agent `alarmdef` file. When MeasureWare Agent is first installed, the `alarmdef` file contains a set of default alarm definitions. You can use these default definitions or customize them to suit your needs.

For detailed information about defining alarms, see Chapter 7, "Performance Alarms," in the *VP Performance Agent for UNIX User's Manual*. This chapter describes the alarm definitions syntax, how alarms work, and how alarms can be used to monitor performance.

Native Language Support

A feature of the MeasureWare Agent **extract** and **utility** programs running on HP-UX systems is native language support (NLS).

The **extract** and **utility** programs can support the date and time formats of other native languages if you use the NLS feature of the HP-UX operating system. (Consult the *Native Language Support: User's Guide* for additional information.)

If a native language is installed and selected on your system, the **extract** and **utility** programs make the following adjustments:

- Dates and times are entered and printed in the language specified in the NLS package. If a date or time is entered in an unrecognizable format, the program prompts you with an example in the correct format.
- The text for the **help** command is obtained from `extract.help` and `utility.help`. These files are located in the `/opt/perf/help/mwa/$LANG` directory where `$LANG` is the language specified for this system. The default language is "`C`." If a `help` catalog cannot be found in the `$LANG` directory, the default `help` files are used.

Viewing and Printing Documents

MeasureWare Agent software includes the standard MeasureWare Agent documentation set in viewable and printable file formats. You can view the Adobe Acrobat format (`*.pdf`) documents online and print as needed. The Adobe PostScript format (`*.ps`) documents and ASCII text (`*.txt`) documents are printable. However, you can view a text file on your screen using any UNIX text editor such as **vi**. The documents are listed in the following table along with their file names and print formats. The files reside in the `/opt/perf/paperdocs/mwa/C/` directory, except for the *ARM API Guide* and *Tracking Your Transactions* files, which reside in the `/opt/perf/paperdocs/arm/` directory.

Document	File Name	Format
VP Performance Agent for HP-UX Installation & Configuration Guide	`mwainst_ux.ps` `mwainst_ux.pdf`	`PostScript file` `Acrobat file`
VP Performance Agent for UNIX User's Manual	`mwausers.ps` `mwausers.pdf`	`PostScript file` `Acrobat file`
VP Performance Agent for UNIX Data Source Integration Guide	`mwadsi.ps` `mwadsi.pdf`	`PostScript file` `Acrobat file`
VP Performance Agent for UNIX & GlancePlus: Tracking Your Transactions	`tyt.ps` `tyt.pdf`	`PostScript file` `Acrobat file`
Application Response Measurement (ARM) API Guide	`arm2api.ps` `arm2api.pdf`	`PostScript file` `Acrobat file`

VP Performance Agent Dictionary of Operating System Metrics	`metrics.ps.Z`
	`metrics.pdf`
	`methp.txt`
	`mettable.txt`
		`PostScript file`
		`Acrobat file`
		`ASCII text`
		`ASCII text`

Adobe Acrobat Files

The Adobe Acrobat files were created with Acrobat 4.0 and are viewed with the Adobe Acrobat Reader versions 3.0 and higher. If the Acrobat Reader is not in your Web browser, you can download it from Adobe's web site: `www.adobe.com`. While viewing a document in the Acrobat Reader, you can print a single page, a group of pages, or the entire document.

Adobe PostScript Files

The Adobe PostScript files (`*.ps`) must be printed on a PostScript-compatible printer. If any of these files are compressed, use the following command to uncompress and print the documents. (**zca**t uncompresses the file and **lp -d** sends the uncompressed file to the printer):

`zcat /opt/perf/paperdocs/mwa/C/`*`document`* `| lp -d`*`destination printer`*

where:

`document` is the name of the document you want to print (*.ps.Z)

`destination printer` is the name of your printer.

ASCII Text Files

To print a `.txt` file, type:

`lp -d`*`printername filename`*

For example,

```
lp -dros1234 Metrics.txt
```

3

Error Messages

Introduction

This chapter describes error and warning messages that may occur when you run MeasureWare Agent.

Error messages for **scopeux** are logged in the `/var/opt/perf/status.scope` file. These error messages are time stamped and are followed by a system error message if the error occurred when a system call failed.

Installation Error Messages

Errors occurring during installation can be caused by a lack of required hardware, lack of memory or disk space, missing required software, or operating system problems such as having the wrong version number. To correct any of these problems, see Chapters 1 and 2 in this Guide for information about system and software requirements.

If you cannot isolate the error or if the error cannot be corrected without additional help, contact your software support organization.

Startup Error Messages

The following errors can occur while the `mwa` script starts up MeasureWare Agent.

Message

`Unable to execute mwa script.`

Action

Make sure you are logged in as `root`. Make sure the `mwa` script is installed in `/opt/perf/bin/` and that it gives you permission to execute the script.

Message

`Invalid parameter "nn".`

Action

The parameter listed is not a valid parameter for this script. Please select a parameter from the list provided.

Message

`Error: This function must be executed by superuser (root).`

Action

You must be `root` to execute the function.

Message

`The performance collection daemon scopeux failed to execute.`

Action

Check for execute permission in `/opt/perf/bin/scopeux`.

Message

```
The performance collection file scopeux not found.
```

Action

Installation was unsuccessful. Make sure the file exists in the `/opt/perf/bin/` directory.

Message

```
The transaction tracking daemon ttd failed to execute.
```

Action

Check execute permission in `/opt/perf/bin/ttd`.

Messages

```
Error: Unable to execute the perflbd program.
```

```
Error: Unable to execute the scopeux program.
```

Action

If you see any of these messages, do the following: Check your file permissions and/or check to see if the program file exists.

Informational Startup Messages

```
The System Performance Collector, scopeux, is already
running.
```

```
The transaction daemon ttd is already running.
```

Mwa Stop Script Error Messages

The following error can occur when using the `mwa stop script` to stop **scopeux** or other processes.

Message

```
Error: The MeasureWare Agent pid(s) [nn] has not terminated.
```

Action

Make sure that your user ID is `root`. Execute `mwa stop` again. You should get an `error 1`. Use **perfstat** to see which processes are still running. If any processes are running, shut them down as necessary.

Scopeux Error Messages

The `mwa` or `mwa start scope` scripts start the **scopeux** collector. Because **scopeux** runs continuously in the background, it records errors and other messages in the `/var/opt/perf/status.scope` file. Messages are date and time stamped to identify when they occurred.

It is recommended that you check the `status.scope` file five minutes after running `mwa` or `mwa start scope` to see if any errors occurred while **scopeux** was being set up.

Message

`Error: Incorrect usage. Usage: scopeux [-d` *`directoryname`*`] [-nopri]`

Action

Use the `mwa start scope` script to start **scopeux**.

Message

`[`*`date and time`*`] Error: Unable to open [`*`filename`*`]`

Action

The system error message indicates what the problem is and what action should be taken. Also check to see if your system is out of disk space.

Message

`Error: Collection stopped due to lack of disk space (< 1MB left)`

Action

Create more disk space in `/var/opt/perf/` and restart **scopeux**, or reduce the `size` parameter in the `parm` file and restart **scopeux**.

Message

`Error: Unable to open status.scope for logging status`

Action

Call your software support organization.

Message

`Error: Unable to open [`*`filename`*`] (PE1-16)`

Action

Scopeux is unable to open a file. If you are unable to open this file by subsequent restarts of **scopeux**, contact your software support organization for assistance.

Message

`[`*`date and time`*`] Error: Cannot write to [`*`filename`*`] (PE1-19)`

Action

Check to see if your system is out of disk space. If necessary, resize your log files using the **resize** command in **utility**.

Message

`[`*`date and time`*`] Error: Memory allocation for [`*`data structure`*`] failed [PE1-20]`

Action

Check to see how much memory is on your system and if any parameters are set to limit the amount of memory a process can allocate. You can reduce the amount of memory used by **scopeux** by reducing the number of applications defined in the `parm` file.

Message

Error: **scopeux** must be run by superuser (root) (PE1-21)

Action

Scopeux terminated abnormally. You must be superuser to run **scopeux**.

Message

[*date and time*] Error: RUN file exists, collector may already be running (PE221-22)

Action

Use the ps command to determine if **scopeux** is running.

If not, **scopeux** may have terminated abnormally. Examine the `status.scope` file for any error messages and look for a core file in `/opt/perf/bin/` or `~root/` directories.

Also, use the **`ls -l log*`** command to check the time the log files were last written to and compare that time to the time the system was booted (as reported from the **uptime** command). If the system boot time is more recent, you should check to see if the system was shut down normally or abnormally. If the shutdown was normal and MeasureWare Agent is running but **scopeux** is *not* running, you might want to automate **scopeux** start up. See "Starting MeasureWare Agent Automatically" in Chapter 2 of this manual.

Or, remove the RUN file in `/var/opt/perf/` and run the `mwa start scope` script.

Message

[*date and time*] Error: Unable to read from logfile [*filename*] - corrupted data (PE221-24)

Action

Verify that you are logged in as `root`. If the file exists in the directory `/var/opt/perf/datafiles`, use the **`ls -l`** command to check the length of the file. If the length is less than 3192, remove or rename the log file and restart **scopeux**.

If the length is greater than 3192, your log file has become corrupted. Try to use **extract** to save the data from the log file. If you cannot save the data, save a copy of the corrupt log file and call your software support organization for assistance.

You can also try to restore the log file from your last backup or start over with a new log file.

Message

`[`*`date and time`*`] Error: Cannot roll log file [`*`logfilename`*`], corrupted data (PE221-37)`

Action

Your log file may have been corrupted. Try to use **extract** to save the data from the log file. Then restore the log file from your last backup and restart **scopeux**.

You can use **extract** to combine data from old and new log files.

If you cannot extract the data from the corrupt log file, save a copy of the log file and contact your software support organization for assistance.

Message

`[`*`date and time`*`]Error: Incompatible log file format (PE221-40)`

Action

This message may occur if MeasureWare Agent is installed on the same system as the version A.03 PerfView Agent. The log files collected for that version of the PerfView Agent are incompatible with MeasureWare Agent log files. Remove those PerfView Agent log files and restart **scopeux**.

Message

`WARNING: Transaction overflow [PE221-49]`

The default **midaemon** Measurement Performance Database size is not large enough to hold all of the registered transactions on this system.

Action

Stop and then restart **midaemon** using the **-smdvss** option to specify a larger Measurement Performance Database size. Use the **midaemon -sizes** option to check the current Measurement Performance Database size. See also the description of the `GBL_TT_OVERFLOW_COUNT` metric in the *VP Performance Agent Dictionary of Performance Metrics*.

Message

`WARNING: Measurement Buffers Lost see metric GBL_LOST_MI_TRACE_BUFFERS. (PE221-50)`

This message indicates that during the previous interval, **mideamon** was not able to keep up with its trace load coming from kernel events. This may happen when there is an excessive amount of context switching, system calls, ARM calls, or real time priority processes running. Repeated buffer loss over time may result in loss of performance metric integrity.

Action

It is recommended that if the metric `GBL_LOST_MI_TRACE_BUFFERS` exceeds 100, the performance tools should be restarted. For more information, see the "Mideamon Program" description in Chapter 2 of this guide.

Message

[*date and time*] `Warning: Problem in line [`*n*`] from parm file (PE222-2)`

Action

Reread the section in Chapter 2 of the *VP Performance Agent for UNIX User's Manual* about setting up the `parm` file and correct any invalid entries. Use

the **parmfile** command in **utility** to check the `parm` file syntax, then restart **scopeux**.

Message

[*date and time*] Warning: Unable to open parm file, defaults will be used (PE222-30)

Action

Verify that the `parm` file has been correctly placed in `/var/opt/perf/`.

Scopeux Warning Messages

Message

```
Warning: Unable to open parm file, defaults are as follows.
[PE1-26]
```

Action

You ran **scopeux** with the `-c` option and it cannot find the `parm` file.

Message

```
Warning: Disk space is low, performing logfile maintenance
check.
```

Action

Create more disk space in `/var/opt/perf/` to avoid loss of performance data.

Message

```
Warning: Unable to open message catalog scopemsgs.
```

Action

Check `/opt/perf/lib/nls/msg/C/` to see if `scopemsgs` exists.

Message

```
Warning: One year log file limit reached, performing log
file maintenance.
```

Action

Scopeux does not log more than 365 days of data. A check for more than 365 days is made at `mainttime`. If that limit has been reached, the warning message is logged to `status.scope` and the log file is rolled back.

Glossary

This glossary contains an alphabetized list of some of the terms associated with MeasureWare Agent.

alarm

An indication of a period of time in which performance meets or exceeds user-specified alarm criteria. Alarm information can be sent to your PerfView analysis system and to HP OpenView and IT/Operations (ITO). Alarms can be identified in historical data log files using the **utility** program.

alarm generator

Handles the communication of alarm information. It consists of the `agdbserver` and the `agdb` database that it manages. The `agdb` database contains a list of PerfView analysis nodes (if any) to which alarms are communicated, and various on/off flags that you set to define when and where the alarm information is set.

alarmdef file

The file containing the alarm definitions in which alarm conditions are specified.

application

A user-defined group of related processes or program files. Applications are defined so that performance software can collect performance metrics for and report on the combined activities of the processes and programs.

application log file

See `logappl`.

data source

Consists of one or more classes of data in a single **scopeux** or DSI log file set. For example, the MeasureWare Agent SCOPE data source is a **scopeux** log file set consisting of global data. *See also* repository server.

data source integration (DSI)

The technology that enables MeasureWare Agent to receive, log, and detect alarms on data from external sources such as applications, databases, networks, and other operating systems.

device

A device is an input and/or output device connected to a system. Common devices include disk drives, tape drives, CD-ROM drives, printers, and user terminals.

device log file

See logdev.

DSI

See data source integration.

DSI log files

Log files containing self-describing data that are created by MeasureWare Agent's DSI programs.

extract

A MeasureWare Agent program that lets you extract data from raw or extracted log files, summarize it, and write it to extracted log files. It also lets you export data for use by analysis programs.

extracted log file

A log file created by the **extract** program. It contains user-selected data ranges and types of data. An extracted log file is formatted for optimal access by the workstation analysis tool, PerfView. This file format is suitable for input to the **extract** and **utility** programs and is the preferred method for archiving performance data.

GlancePlus

GlancePlus is an online diagnostic tool that displays current performance data directly to a user terminal or workstation. It is designed to assist you in identifying and troubleshooting system performance problems as they occur.

global

A qualifier that implies the whole system.

global log file

See `logglob`.

interesting process

A process becomes interesting when it is first created, when it ends, and when it exceeds user-defined thresholds for cpu use, disk use, response time, and so on.

log file set

A collection of files that contain data collected from one source.

logappl

The raw log file that contains measurements of the processes in each user-defined application.

logdev

The raw log file that contains measurements of individual device (such as disk) performance.

logglob

The raw log file that contains measurements of the system-wide, or global, workload.

logindx

The raw log file that contains additional information about the other log files.

logproc

The raw log file that contains measurements of selected "interesting" processes. A process becomes interesting when it is first created, when it ends, and when it exceeds user-defined thresholds for CPU use, disk use, response time, and so on.

logtran

The raw log file that contains measurements of transaction data.

mwa script

A shell script that starts, restarts, stops, and shows the status of all MeasureWare Agent processes.

midaemon

A MeasureWare Agent program that collects and counts trace data coming from the HP-UX kernel and stores the counters in the shared memory segment. This data is the main source of performance data for the **scopeux** collector for MeasureWare Agent running on HP-UX.

parm file

A MeasureWare Agent file containing the parameters used by **scopeux** to customize data collection.

perfstat

A program that displays the status of Hewlett-Packard performance tool processes in your system.

PerfView

Provides integrated performance management for multi-vendor distributed networks. It uses a single workstation to monitor environment performance on networks that range in size from tens to thousands of nodes.

process

Execution of a program file. It can represent an interactive user (processes running at normal, nice, or real-time priorities) or an operating system processes.

process log file

See `logproc`.

raw log file

Summarized measurements of system data collected by **scopeux**. See `logappl`, `logproc`, `logdev`, `logtran`, and `logindx`.

real time

The actual time in which an event takes place.

repository server

A server that provides data to the alarm generator and the PerfView analysis product. There is one repository server for each data source configured in the `perflbd.rc` configuration file. *See also* data source.

resize

Changing the overall size of a log file using the **utility** program's **resize** command.

run file

Created by the **scopeux** collector to indicate that the **scopeux** process is running. Removing the run file causes **scopeux** to terminate.

scopeux

The MeasureWare Agent data collector program that collects performance data and writes (logs) it to raw log files for later analysis or archiving. *See also* raw log files.

scopeux log files

See raw log files.

status.scope file

Created by the **scopeux** collector to record status, data inconsistencies, and errors.

system ID

The string of characters that identifies your system. The default is the host name as returned by **uname -n**.

transaction log file

See `logtran`.

transaction tracking

The technology used in MeasureWare Agent that allows information technology (IT) resource managers to measure end-to-end response time of business application transactions.

ttd.conf

The transaction configuration file where you define each transaction and the information to be tracked, such as transaction name, performance distribution range, and service level objective.

utility

A MeasureWare Agent program that allows you to open, resize, scan, and generate reports on raw and extracted log files. You can also use it to check `parm` file and `alarmdef` file syntax, and obtain alarm information from historical log file data.

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